

Conservation For The Anthropocene Ocean Interdisciplinary Science In Support Of Nature And People

This volume investigates the effects of human activities on coral reefs, which provide important life-supporting systems to surrounding natural and human communities. It examines the self-reinforcing ecological, economic and technological mechanisms that degrade coral reef ecosystems around the world. Topics include reefs and limestones in Earth history; the interactions between corals and their symbiotic algae; diseases of coral reef organisms; the complex triangle between reef fishes, seaweeds and corals; coral disturbance and recovery in a changing world. In addition, the authors take key recent advances in DNA studies into account which provides new insights into the population biology, patterns of species distributions, recent evolution and vulnerabilities to environmental stresses. These DNA analyses also provide new understandings of the limitations of coral responses and scales of management necessary to sustain coral reefs in their present states. Coral reefs have been essential sources of food, income and resources to humans for millennia. This book details the delicate balance that exists within these ecosystems at all scales, from geologic time to cellular interactions and explores how recent global and local changes influence this relationship. It will serve as an indispensable resource for all those interested in learning how human activities have affected this vital ecosystem around the world.

Conservation for the Anthropocene Ocean: Interdisciplinary Science in Support of Nature and People emphasizes strategies to better connect the practice of marine

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conservation with the needs and priorities of a growing global human population. It conceptualizes nature and people as part of shared ecosystems, with interdisciplinary methodologies and science-based applications for coupled sustainability. A central challenge facing conservation is the development of practical means for addressing the interconnectedness of ecosystem health and human well-being, advancing the fundamental interdisciplinary science that underlies conservation practice, and implementing this science in decisions to manage, preserve, and restore ocean ecosystems. Though humans have intentionally and unintentionally reshaped their environments for thousands of years, the scale and scope of human influence upon the oceans in the Anthropocene is unprecedented. Ocean science has increased our knowledge of the threats and impacts to ecological integrity, yet the unique scale and scope of changes increases uncertainty about responses of dynamic socio-ecological systems. Thus, to understand and protect the biodiversity of the ocean and ameliorate the negative impacts of ocean change on people, it is critical to understand human beliefs, values, behaviors, and impacts. Conversely, on a human-dominated planet, it is impossible to understand and address human well-being and chart a course for sustainable use of the oceans without understanding the implications of environmental change for human societies that depend on marine ecosystems and resources. This work therefore presents a timely, needed, and interdisciplinary approach to the conservation of our oceans. Helps marine conservation scientists apply principles from oceanography, ecology, anthropology, economics, political science, and other natural and social sciences to manage and preserve marine biodiversity Facilitates understanding of how and why social and environmental processes are coupled in the quest to achieve healthy and

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sustainable oceans Uses a combination of expository material, practical approaches, and forward-looking theoretical discussions to enhance value for readers as they consider conservation research, management and planning

Predicting Future Oceans: Sustainability of Ocean and Human Systems Amidst Global Environmental Change provides a synthesis of our knowledge of the future state of the oceans. The editors undertake the challenge of integrating diverse perspectives—from oceanography to anthropology—to exhibit the changes in ecological conditions and their socioeconomic implications. Each contributing author provides a novel perspective, with the book as a whole collating scholarly understandings of future oceans and coastal communities across the world. The diverse perspectives, syntheses and state-of-the-art natural and social sciences contributions are led by past and current research fellows and principal investigators of the Nereus Program network. This includes members at 17 leading research institutes, addressing themes such as oceanography, biodiversity, fisheries, mariculture production, economics, pollution, public health and marine policy. This book is a comprehensive resource for senior undergraduate and postgraduate readers studying social and natural science, as well as practitioners working in the field of natural resources management and marine conservation. Provides a synthesis of our knowledge on the future state of the oceans Includes recommendations on how to move forwards Highlights key social aspects linked to ocean ecosystems, including health, equity and sovereignty Whether through loss of habitat or cascading community effects, diseases can shape the very nature of the marine environment. Despite their significant impacts, studies of marine diseases have tended to lag behind their terrestrial equivalents, particularly with regards to their ecological

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effects. However, in recent decades global research focused on marine disease ecology has expanded at an accelerating rate. This is due in part to increases in disease emergence across many taxa, but can also be attributed to a broader realization that the parasites responsible for disease are themselves important members of marine communities. Understanding their ecological relationships with the environment and their hosts is critical to understanding, conserving, and managing natural and exploited populations, communities, and ecosystems. Courses on marine disease ecology are now starting to emerge and this first textbook in the field will be ideally placed to serve them. Marine Disease Ecology is suitable for graduate students and researchers in the fields of marine disease ecology, aquaculture, fisheries, veterinary science, evolution and conservation. It will also be of relevance and use to a broader interdisciplinary audience of government agencies, NGOs, and marine resource managers.

Against the Domestication of Earth

A Global Perspective

The Human Planet

Visualizing Posthuman Conservation in the Age of the Anthropocene

Biological Sampling in the Deep Sea

Marine Biodiversity Conservation

This book addresses emerging challenges for the World Ocean in the Anthropocene epoch and the effects of increasing globalisation on the seas. The issues explored in particular include climate change, sustainable fisheries, biodiversity, shipping and regional seas adjoining Europe.

The Politics of the Anthropocene is a sophisticated yet accessible treatment of how human institutions, practices, and principles need to be re-thought in

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response to the challenges of the Anthropocene, the emerging epoch of human-induced instability in the Earth system and its life-support capacities. However, the world remains stuck with practices and modes of thinking that were developed in the Holocene - the epoch of around 12,000 years of unusual stability in the Earth system, toward the end of which modern institutions such as states and capitalist markets arose. These institutions persist despite their potentially catastrophic failure to respond to the challenges of the Anthropocene, foremost among them a rapidly changing climate and accelerating biodiversity loss. The pathological trajectories of these institutions need to be disrupted by advancing ecological reflexivity: the capacity of structures, systems, and sets of ideas to question their own core commitments, and if necessary change themselves, while listening and responding effectively to signals from the Earth system. This book envisages a world in which humans are no longer estranged from the Earth system but engage with it in a more productive relationship. We can still pursue democracy, social justice, and sustainability - but not as before. In future, all politics should be first and foremost a politics of the Anthropocene. The arguments are developed in the context of issues such as climate change, biodiversity, and global efforts to address sustainability.

What does feminism have to say to the Anthropocene? How does the concept of the Anthropocene impact feminism? This book is a daring and provocative response to the masculinist and techno-normative approach to the Anthropocene so often taken by technoscientists, artists, humanists,

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and social scientists. By coining and, for the first time, fully exploring the concept of “anthropocene feminism,” it highlights the alternatives feminism and queer theory can offer for thinking about the Anthropocene. Feminist theory has long been concerned with the anthropogenic impact of humans, particularly men, on nature. Consequently, the contributors to this volume explore not only what current interest in the Anthropocene might mean for feminism but also what it is that feminist theory can contribute to technoscientific understandings of the Anthropocene. With essays from prominent environmental and feminist scholars on topics ranging from Hawaiian poetry to Foucault to shelled creatures to hypomodernity to posthuman feminism, this book highlights both why we need an anthropocene feminism and why thinking about the Anthropocene must come from feminism. Contributors: Stacy Alaimo, U of Texas at Arlington; Rosi Braidotti, Utrecht U; Joshua Clover, U of California, Davis; Claire Colebrook, Pennsylvania State U; Dehlia Hannah, Arizona State U; Myra J. Hird, Queen’s U; Lynne Huffer, Emory U; Natalie Jeremijenko, New York U; Elizabeth A. Povinelli, Columbia U; Jill S. Schneiderman, Vassar College; Juliana Spahr, Mills College; Alexander Zahara, Queen’s U.

Marine extremes, as they are conceived of in this volume, encompass environments, activities, events and impacts. Extreme environments found in and around our oceans, including the deep sea and seabed as well as the frozen polar regions, are being seriously affected by both extreme behaviours (dumping and discharge of waste, illegal fishing and piracy) and extreme events (storms, tsunamis,

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extreme waves and marine heatwaves). The aim of this book is to highlight the multi-disciplinary knowledge and inputs needed to address marine extremes and thereafter to explore opportunities and current challenges. Safe and healthy oceans are important for economic, recreational and cultural activities, in addition to the maintenance of ecosystem services upon which we rely. This volume gathers a unique mix of researchers working on scientific aspects of biological ecosystems and physical processes together with social scientists exploring law and governance options, community preferences, cultural values, economic aspects and criminological drivers and approaches. The multi-disciplinary feature of this book breaks down barriers that arise between disparate fields of research so that integrated solutions to ocean challenges can be found. Overall, this book argues that if we are to achieve sustainable utilisation of our oceans and blue economy goals we must better understand, and respond to, the extreme environments, activities, events and impacts. The book is a valuable addition to the literature and will be of interest to researchers in marine science, ocean governance and natural resource economics, as well as to professionals and government officials concerned with marine policy and planning.

An Ecologist's Journey to Make Peace with the Anthropocene

Climate Change, Sustainable Fisheries, Biodiversity, Shipping, Regional Issues

Effects of Anthropogenic Noise on Animals

Marine Observations and Society: Pathways to

Improve Public Engagement and the Science-Policy

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Nexus

Governing the Anthropocene

Routledge Handbook of Marine Governance and
Global Environmental Change

Illuminating the conditions for global
governance to have precipitated the

devastating decline of one of the

ocean's most majestic creatures The

International Commission for the

Conservation of Atlantic Tunas (ICCAT)

is the world's foremost organization

for managing and conserving tunas,

seabirds, turtles, and sharks

traversing international waters.

Founded by treaty in 1969, ICCAT

stewards what has become under its

tenure one of the planet's most

prominent endangered fish: the Atlantic

bluefin tuna. Called "red gold" by

industry insiders for the exorbitant

price her ruby-colored flesh commands

in the sushi economy, the giant bluefin

tuna has crashed in size and number

under ICCAT's custodianship. With

regulations to conserve these sea

creatures in place for half a century,

why have so many big bluefin tuna

vanished from the Atlantic? In *Red*

Gold, Jennifer E. Telesca offers

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unparalleled access to ICCAT to show that the institution has faithfully executed the task assigned it by international law: to fish as hard as possible to grow national economies. ICCAT manages the bluefin not to protect them but to secure export markets for commodity empires—and, as a result, has become complicit in their extermination. The decades of regulating fish as commodities have had disastrous consequences. Amid the mass extinction of all kinds of life today, Red Gold acquaints the reader with the splendors of the giant bluefin tuna through vignettes that defy technoscientific and market rationales. Ultimately, this book shows, changing the way people value marine life must come not only from reforming ICCAT but from transforming the dominant culture that consents to this slaughter. This book provides a broad overview of how the promotion of ocean and coastal literacy is being planned, applied and evaluated in Brazil, a country of continental dimensions with a great diversity of cultural, educational and social realities. It discusses a range

of target groups, from children to adults; formal and informal strategies; and various promoting players, such as groups/institutions. Researchers representing Brazilian academic institutions and NGOs share their environmental education (EE) experiences in Brazil and describe the main concerns regarding the marine and coastal environments as well as how they are addressing these concerns in their EE projects. This book is of interest to anyone who is looking for ways of designing and implementing EE activities with a robust theoretical background in different socio-cultural scenarios.

Advances a notion of posthuman environmental conservation based on how visual technologies, from photography to GPS tracking, present arguments about species protection.

Bringing together leading scholars from across a diverse range of disciplines, this unique book examines a key question: How can we best conserve marine living resources in the polar regions, where climate change effects and human activities are particularly

Coastal Fluxes in the Anthropocene
Ocean Safety, Marine Health and the
Blue Economy
Novel Ecosystems, Transformation and
Environmental Policy
How to Rescue and Protect the World's
Oceans
Charting Environmental Law Futures in
the Anthropocene
Encyclopedia of the Anthropocene

A Silent Spring for oceans, written by "the Rachel Carson of the fish world" (The New York Times) Who can forget the sense of wonder with which they discovered the creatures of the deep? In this vibrant hymn to the sea, Callum Roberts—one of the world's foremost conservation biologists—leads readers on a fascinating tour of mankind's relationship to the sea, from the earliest traces of water on earth to the oceans as we know them today. In the process, Roberts looks at how the taming of the oceans has shaped human civilization and affected marine life. We have always been fish eaters, from the dawn of civilization, but in the last twenty years we have transformed the oceans beyond recognition. Putting our exploitation of the seas into historical context, Roberts offers a devastating account of the impact of modern fishing techniques, pollution, and climate change, and reveals what it would take to steer the right course while there is still time. Like Four Fish and The Omnivore's Dilemma, The Ocean of Life takes a long view to tell a story in which each one of us has a role to play.

Is it time to embrace the so-called "Anthropocene"—the age of

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*human dominion—and to abandon tried-and-true conservation tools such as parks and wilderness areas? Is the future of Earth to be fully domesticated, an engineered global garden managed by technocrats to serve humanity? The schism between advocates of rewilding and those who accept and even celebrate a “post-wild” world is arguably the hottest intellectual battle in contemporary conservation. In *Keeping the Wild*, a group of prominent scientists, writers, and conservation activists responds to the Anthropocene-boosters who claim that wild nature is no more (or in any case not much worth caring about), that human-caused extinction is acceptable, and that “novel ecosystems” are an adequate replacement for natural landscapes. With rhetorical fists swinging, the book’s contributors argue that these “new environmentalists” embody the hubris of the managerial mindset and offer a conservation strategy that will fail to protect life in all its buzzing, blossoming diversity. With essays from Eileen Crist, David Ehrenfeld, Dave Foreman, Lisi Krall, Harvey Locke, Curt Meine, Kathleen Dean Moore, Michael Soulé, Terry Tempest Williams and other leading thinkers, *Keeping the Wild* provides an introduction to this important debate, a critique of the Anthropocene boosters’ attack on traditional conservation, and unapologetic advocacy for wild nature.*

This comprehensive handbook provides a detailed and unique overview of current thinking about marine governance in the context of global environmental change. Many of the most profound impacts of global environmental change, and climate change in particular, will occur in the oceans. It is vital that we consider the role of marine governance in adapting to and mitigating these impacts. This comprehensive handbook provides a thorough review of current thinking about marine environmental governance, including law and policy, in the

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context of global environmental change. Initial chapters describe international law, regimes, and leadership in marine environmental governance, in the process considering how existing regimes for climate change and the oceans should and can be coordinated. This is followed by an exploration of the role of non-state actors, including scientists, nongovernmental organisations, and corporations. The next section includes a collection of chapters highlighting governance schemes in a variety of marine environments and regions, including coastlines, islands, coral reefs, the open ocean, and regional seas.

Subsequent chapters examine emerging issues in marine governance, including plastic pollution, maritime transport, sustainable development, environmental justice, and human rights. Providing a definitive overview, the Routledge Handbook of Marine Governance and Global Environmental Change is suitable for advanced students in marine and environmental governance, environmental law and policy, and climate change, as well as practitioners, activists, stakeholders, and others concerned about the world's oceans and seas.

Effective marine biodiversity conservation is dependent upon a clear scientific rationale for practical interventions. This book is intended to provide knowledge and tools for marine conservation practitioners and to identify issues and mechanisms for upper-level undergraduate and Masters students. It also provides sound guidance for marine biology field course work and professionals. The main focus is on benthic species living on or in the seabed and immediately above, rather than on commercial fisheries or highly mobile vertebrates. Such species, including algae and invertebrates, are fundamental to a stable and sustainable marine ecosystem. The book is a practical guide based on a clear exposition of the principles of marine ecology

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and species biology to demonstrate how marine conservation issues and mechanisms have been tackled worldwide and especially the criteria, structures and decision trees that practitioners and managers will find useful. Well illustrated with conceptual diagrams and flow charts, the book includes case study examples from both temperate and tropical marine environments.

Future Sea

Human Impacts on Salt Marshes

The Ocean of Life

Sustainability of Ocean and Human Systems Amidst Global Environmental Change

The World Ocean in Globalisation

Red Gold

"Human Impacts on Salt Marshes provides an excellent global synthesis of an important, underappreciated environmental problem and suggests solutions to the diverse threats affecting salt marshes."—Peter B. Moyle, University of California, Davis

A counterintuitive and compelling argument that existing laws already protect the entirety of our oceans—and a call to understand and enforce those protections. The world's oceans face multiple threats: the effects of climate change, pollution, overfishing, plastic waste, and more. Confronted with the immensity of these challenges and of the oceans themselves, we might wonder what more can be done to stop their decline and better protect the sea and marine life. Such widespread environmental threats call for a simple but significant shift in reasoning to bring about long-overdue, elemental change in the way we use ocean resources. In *Future Sea*, ocean advocate and marine-policy researcher Deborah Rowan Wright provides the tools for that shift.

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Questioning the underlying philosophy of established ocean conservation approaches, Rowan Wright lays out a radical alternative: a bold and far-reaching strategy of 100 percent ocean protection that would put an end to destructive industrial activities, better safeguard marine biodiversity, and enable ocean wildlife to return and thrive along coasts and in seas around the globe. *Future Sea* is essentially concerned with the solutions and not the problems. Rowan Wright shines a light on existing international laws intended to keep marine environments safe that could underpin this new strategy. She gathers inspiring stories of communities and countries using ocean resources wisely, as well as of successful conservation projects, to build up a cautiously optimistic picture of the future for our oceans—counteracting all-too-prevalent reports of doom and gloom. A passionate, sweeping, and personal account, *Future Sea* not only argues for systemic change in how we manage what we do in the sea but also describes steps that anyone, from children to political leaders (or indeed, any reader of the book), can take toward safeguarding the oceans and their extraordinary wildlife. Biodiversity loss in terrestrial environments associated with human activities has been appreciated as a major issue for some years now. What is less well documented is the effect of such activities, including climate change, on marine biodiversity. This pioneering book is the first to address this important but neglected topic, which is likely to be the key challenge for marine scientists in the near future. Using a multidisciplinary and a holistic approach, the book reveals how climatic variability controls biodiversity at time scales ranging from synoptic meteorological events to millions of years and at spatial scales ranging from local sites to the whole ocean. It shows how global change, including anthropogenic climate change, ocean acidification and more direct human influences such as exploitation, pollution and

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eutrophication may alter biodiversity, ecosystem functioning and regulating and provisioning services. The author proposes a theory termed the 'macroecological theory on the arrangement of life', which explains how biodiversity is organized and how it responds to climatic variability and anthropogenic climate change. The book concludes with recommendations for further research and theoretical development to identify oceanic areas in need of observation and gaps in current scientific knowledge. Many references and comparisons with the terrestrial realm are included in all chapters to better understand the universality of the relationships between biodiversity, climate and the environment. The book will serve as a textbook for all students and researchers of marine science and environmental change, but will also be accessible to the more general reader.

Providing a guide for marine conservation practice, *Marine Conservation* takes a whole-systems approach, covering major advances in marine ecosystem understanding. Its premise is that conservation must be informed by the natural histories of organisms together with the hierarchy of scale-related linkages and ecosystem processes. The authors introduce a broad range of overlapping issues and the conservation mechanisms that have been devised to achieve marine conservation goals. The book provides students and conservation practitioners with a framework for thoughtful, critical thinking in order to incite innovation in the 21st century. "Marine Conservation presents a scholarly but eminently readable case for the necessity of a systems approach to conserving the oceans, combining superb introductions to the science, law and policy frameworks with carefully chosen case studies. This superb volume is a must for anyone interested in marine conservation, from students and practitioners to lay readers and policy-makers." —Simon

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Gender and the Law of the Sea

The Managed Extinction of the Giant Bluefin Tuna

Dark Side of the Ocean: The Destruction of Our Seas, Why It Matters, and What We Can Do About It

Conservation for the Anthropocene Ocean

Proceedings of the 2018 conference for YOUng MARine RESEarcher in Oldenburg, Germany

Marine Disease Ecology

Over the past several years, many investigators interested in the effects of man-made sounds on animals have come to realize that there is much to gain from studying the broader literature on hearing sound and the effects of sound as well as data from the effects on humans. It has also become clear that knowledge of the effects of sound on one group of animals (e.g., birds or frogs) can guide studies on other groups (e.g., marine mammals or fishes) and that a review of all such studies together would be very useful to get a better understanding of the general principles and underlying cochlear and cognitive mechanisms that explain damage, disturbance, and deterrence across taxa. The purpose of this volume, then, is to provide a

comprehensive review of the effects of man-made sounds on animals, with the goal of fulfilling two major needs. First, it was thought to be important to bring together data on sound and bioacoustics that have implications across all taxa (including humans) so that such information is generally available to the community of scholars interested in the effects of sound. This is done in Chaps. 2-5. Second, in Chaps. 6-10, the volume brings together what is known about the effects of sound on diverse vertebrate taxa so that investigators with interests in specific groups can learn from the data and experimental approaches from other species. Put another way, having an overview of the similarities and discrepancies among various animal groups and insight into the "how and why" will benefit the overall conceptual understanding, applications in society, and all future research. A dynamic aerial exploration of our changing planet, published on the 50th anniversary of Earth Day *The Human Planet* is a sweeping visual chronicle of the Earth today from a photographer

who has circled the globe to report on such urgent issues as climate change, sustainable agriculture, and the ever-expanding human footprint. George Steinmetz is at home on every continent, documenting both untrammelled nature and the human project that relentlessly redesigns the planet in its quest to build shelter, grow food, generate energy, and create beauty through art and architecture. In his images, accompanied by authoritative text by renowned science writer Andrew Revkin, we are encountering the dramatic and perplexing new face of our ancient home.

This book focuses on central themes related to the conservation of bats. It details their response to land-use change and management practices, intensified urbanization and roost disturbance and loss. Increasing interactions between humans and bats as a result of hunting, disease relationships, occupation of human dwellings, and conflict over fruit crops are explored in depth. Finally, contributors highlight the roles that taxonomy, conservation networks and

conservation psychology have to play in conserving this imperilled but vital taxon. With over 1300 species, bats are the second largest order of mammals, yet as the Anthropocene dawns, bat populations around the world are in decline. Greater understanding of the anthropogenic drivers of this decline and exploration of possible mitigation measures are urgently needed if we are to retain global bat diversity in the coming decades. This book brings together teams of international experts to provide a global review of current understanding and recommend directions for future research and mitigation. Our oceans face levels of devastation previously unknown in human history--from pollution, from overfishing, and through damage to delicate aquatic ecosystems affected by global warming. Ocean biodiversity is being decimated on par with the fastest rates of rain forest destruction. More than 80 per cent of pollutants in the oceans come from sewage and other land-based runoff (some of it radioactive). The rest is created by waste dumped by commercial and recreational vessels. In

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many areas and for many fish stocks, there are no conservation or management measures existing or even planned.

Climate author Albert Bates explains how ocean life maintains adequate oxygen levels, prevents erosion from storms, and sustains a vital food source that factory fishing operations cannot match--and why that should matter to all of us, whether we live near the ocean or not. He presents solutions for changing the human impact on marine reserves, improving ocean permaculture, and putting the brakes on the ocean heat waves that destroy sea life and imperil human habitation at the ocean's edge.

Governing Marine Living Resources in the Polar Regions

Coastal and Marine Environmental Education

Predicting Future Oceans

Changing Tides

Science, Policy, and Management

Earth at the Dawn of the Anthropocene

Gender and the Law of the Sea successfully establishes the relevance of gender at sea and posits that feminist perspectives can help develop a more inclusive law for the oceans.

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This open access book summarizes peer-reviewed articles and the abstracts of oral and poster presentations given during the YOUMARES 9 conference which took place in Oldenburg, Germany, in September 2018. The aims of this book are to summarize state-of-the-art knowledge in marine sciences and to inspire scientists of all career stages in the development of further research. These conferences are organized by and for young marine researchers. Qualified early-career researchers, who moderated topical sessions during the conference, contributed literature reviews on specific topics within their research field.

The Routledge Companion to the Environmental Humanities provides a comprehensive, transnational, and interdisciplinary map to the field, offering a broad overview of its founding principles while providing insight into exciting new directions for future scholarship. Articulating the significance of humanistic perspectives for our collective social engagement with ecological crises, the volume explores the potential of the environmental humanities for organizing humanistic research, opening up new forms of interdisciplinarity, and shaping public debate and policies on environmental issues. Sections cover: The Anthropocene and the Domestication of Earth Posthumanism and Multispecies Communities Inequality and Environmental Justice Decline and Resilience: Environmental Narratives, History, and Memory Environmental Arts, Media, and Technologies The State of the Environmental Humanities The first of its kind, this companion covers essential issues and themes, necessarily crossing disciplines within the

humanities and with the social and natural sciences. Exploring how the environmental humanities contribute to policy and action concerning some of the key intellectual, social, and environmental challenges of our times, the chapters offer an ideal guide to this rapidly developing field.

The deep sea covers over 60% of the surface of the earth, yet less than 1% has been scientifically investigated. There is growing pressure on deep-sea resources and on researchers to deliver information on biodiversity and the effects of human impacts on deep-sea ecosystems. Although scientific knowledge has increased rapidly in recent decades, there exist large gaps in global sampling coverage of the deep sea, and major efforts continue to be directed into offshore research. *Biological Sampling in the Deep Sea* represents the first comprehensive compilation of deep-sea sampling methodologies for a range of habitats. It reviews the real life applications of current, and in some instances developing, deep-sea sampling tools and techniques. In creating this book the authors have been able to draw upon the experiences of those at the coal face of deep-sea sampling, expanding on the existing methodological texts whilst encompassing a level of technical detail often omitted from journal publications. Ultimately the book will promote international consistency in sampling approaches and data collection, advance the integration of information into global databases, and facilitate improved data analyses and consequently uptake of science results for the management and conservation of the deep-sea environment. The book will appeal to a range of readers, including students, early-career through to

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seasoned researchers, as well as environmental managers and policy makers wishing to understand how the deep-sea is sampled, the challenges associated with deep survey work, and the type of information that can be obtained.

Ocean Ecology

Marine Conservation

A Resource for Practitioners and Researchers

A coordinated approach in the context of the 2030 Agenda and the Paris Agreement

The Land-Ocean Interactions in the Coastal Zone Project of the International Geosphere-Biosphere Programme

Coral Reefs in the Anthropocene

This book focuses on the present and future challenges of managing ecosystem transformation on a planet where human impacts are pervasive. In this new epoch, the Anthropocene, the already rapid rate of species loss is amplified by climate change and other stress factors, causing transformation of highly-valued landscapes. Many locations are already transforming into novel ecosystems, where new species, interactions, and ecological functions are creating landscapes unlike anything seen before. This has sparked contentious debate not just about science, but about decision-making, responsibility, fairness, and human capacity to intervene. Clement argues that the social and ecological reality of the Anthropocene

requires modernised governance and policy to confront these new challenges and achieve ecological objectives. There is a real opportunity to enable society to cope with transformed ecosystems by changing governance, but this is notoriously difficult. Aimed at anyone involved in these conversations, be those researchers, practitioners, decision makers or students, this book brings together diffuse research exploring how to confront institutional change and ecological transformation in different contexts, and provides insight into how to translate governance concepts into productive pathways forward.

A comprehensive introduction to ocean ecology and a new way of thinking about ocean life Marine ecology is more interdisciplinary, broader in scope, and more intimately linked to human activities than ever before. Ocean Ecology provides advanced undergraduates, graduate students, and practitioners with an integrated approach to marine ecology that reflects these new scientific realities, and prepares students for the challenges of studying and managing the ocean as a complex adaptive system. This authoritative and accessible textbook advances a framework based on interactions

among four major features of marine ecosystems—geomorphology, the abiotic environment, biodiversity, and biogeochemistry—and shows how life is a driver of environmental conditions and dynamics. Ocean Ecology explains the ecological processes that link organismal to ecosystem scales and that shape the major types of ocean ecosystems, historically and in today's Anthropocene world. Provides an integrated new approach to understanding and managing the ocean Shows how biological diversity is the heart of functioning ecosystems Spans genes to earth systems, surface to seafloor, and estuary to ocean gyre Links species composition, trait distribution, and other ecological structures to the functioning of ecosystems Explains how fishing, fossil fuel combustion, industrial fertilizer use, and other human impacts are transforming the Anthropocene ocean An essential textbook for students and an invaluable resource for practitioners

This edited volume is the premier book dedicated exclusively to marine science education and improving ocean literacy, aiming to showcase exemplary practices in marine science education and educational research in this field on a global scale.

It informs, inspires, and provides an intellectual forum for practitioners and researchers in this particular context. Subject areas include sections on marine science education in formal, informal and community settings. This book will be useful to marine science education practitioners (e.g. formal and informal educators) and researchers (both education and science).

How Japanese coastal residents and transnational conservationists collaborated to foster relationships between humans and sea life *Drawing the Sea Near* opens a new window to our understanding of transnational conservation by investigating projects in Okinawa shaped by a “conservation-near” approach—which draws on the senses, the body, and memory to collapse the distance between people and their surroundings and to foster collaboration and equity between coastal residents and transnational conservation organizations. This approach contrasts with the traditional Western “conservation-far” model premised on the separation of humans from the environment. Based on twenty months of participant observation and interviews, this richly detailed, engagingly written ethnography focuses on Okinawa’s coral reefs to

explore an unusually inclusive, experiential, and socially just approach to conservation. In doing so, C. Anne Claus challenges orthodox assumptions about nature, wilderness, and the future of environmentalism within transnational organizations. She provides a compelling look at how transnational conservation organizations—in this case a field office of the World Wide Fund for Nature in Okinawa—negotiate institutional expectations for conservation with localized approaches to caring for ocean life. In pursuing how particular projects off the coast of Japan unfolded, *Drawing the Sea Near* illuminates the real challenges and possibilities of work within the multifaceted transnational structures of global conservation organizations. Uniquely, it focuses on the conservationists themselves: why and how has their approach to project work changed, and how have they themselves been transformed in the process?

Anthropocene Feminism

Marine Ecology

The Fate of Man and the Sea

The Routledge Companion to the

Environmental Humanities

**Satoumi and Coral Reef Conservation in
Okinawa**

Concepts and Applications

Every year, 10 outstanding Research Topics are selected as finalists of the Frontiers Spotlight Award. These shortlisted article collections each address a globally important field of research with the potential to drastically impact our future. They bring together the latest, cutting-edge research to advance their fields, present new solutions and foster essential, large-scale collaborations across multiple disciplines and research groups worldwide. This international research prize recognizes the most innovative and impactful topics and the winning team of editors receives \$100,000 to organize an international scientific conference on the theme of their successful collection.

Change the story and change the future - merging science and Indigenous knowledge to steer us towards a more benign Anthropocene In *Changing Tides*, Alejandro Frid tackles the big questions: who, or what, represents our essential selves, and what stories might allow us to shift the collective psyche of industrial civilization in time to avert the worst of the climate and biodiversity crises? Merging scientific perspectives with Indigenous knowledge might just help us

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change the story we tell ourselves about who we are and where we could go. As humanity marches on, causing mass extinctions and destabilizing the climate, the future of Earth will very much reflect the stories that Homo sapiens decide to jettison or accept today into our collective identity. At this pivotal moment in history, the most important story we can be telling ourselves is that humans are not inherently destructive. In seeking the answers, Frid draws from a deep well of personal experience and that of Indigenous colleagues, finding a glimmer of hope in Indigenous cultures that, despite the ravishes of colonialism, have for thousands of years developed intentional and socially complex practices for resource management that epitomize sustainability. *Changing Tides* is for everyone concerned with the irrevocable changes we have unleashed upon our planet and how we might steer towards a more benign Anthropocene.

Climate change threatens our ability to ensure global food security, eradicate poverty and achieve sustainable development. About 736 million people live in extreme poverty, and the global response to climate change today will determine how we feed future generations.

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By 2030, UN member countries have committed to eradicating extreme poverty and hunger for people everywhere. As ending poverty and hunger are at the heart of FAO's work, the organization is helping countries develop and implement evidence-based pro-poor policies, strategies and programmes that promote inclusive growth and sustainable livelihoods, as well as to increase the resilience, adaptive and coping capacity of poor and vulnerable communities to climate change. In order to achieve this, FAO encourages an integrated Climate-Poverty Approach to support policy development and action by policymakers, government officials, local-level institutions, communities, researchers, and development and humanitarian agencies worldwide. The Approach has been developed with insights from many perspectives, and includes not only climate and poverty aspects, but also indigenous, gender, food security, disaster response, resilience, SIDS and coastal community perspectives, among others. With a series of policy recommendations and tools to improve the design, delivery, and results of synergies and linkages between climate mitigation and adaptation, poverty reduction and food security actions, these synergies and linkages can make significant

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contributions towards achieving both the Sustainable Development Goals (SDGs) and Paris Agreement targets.

This book synthesizes knowledge of coastal and riverine material fluxes, biogeochemical processes and indications of change, both natural, and increasingly human-initiated. Here, the authors assess coastal flux in the past and present, and in future under the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change (IHDP) and the LOICZ II (Land-Ocean Interactions in the Coastal Zone) Project.

Drawing the Sea Near

Marine Extremes

Exemplary Practices in Marine Science

Education

Marine Biodiversity, Climatic Variability and Global Change

YOUMARES 9 - The Oceans: Our Research, Our Future

Keeping the Wild

Encyclopedia of the Anthropocene presents a currency-based, global synthesis cataloguing the impact of humanity's global ecological footprint. Covering a multitude of aspects related to Climate Change, Biodiversity, Contaminants, Geological, Energy and Ethics, leading scientists provide foundational essays that enable researchers to define and scrutinize information, ideas, relationships, meanings and ideas within the Anthropocene concept. Questions widely debated among

scientists, humanists, conservationists, politicians and others are included, providing discussion on when the Anthropocene began, what to call it, whether it should be considered an official geological epoch, whether it can be contained in time, and how it will affect future generations. Although the idea that humanity has driven the planet into a new geological epoch has been around since the dawn of the 20th century, the term 'Anthropocene' was only first used by ecologist Eugene Stoermer in the 1980s, and hence popularized in its current meaning by atmospheric chemist Paul Crutzen in 2000. Presents comprehensive and systematic coverage of topics related to the Anthropocene, with a focus on the Geosciences and Environmental science Includes point-counterpoint articles debating key aspects of the Anthropocene, giving users an even-handed navigation of this complex area Provides historic, seminal papers and essays from leading scientists and philosophers who demonstrate changes in the Anthropocene concept over time

This book explores a range of plausible futures for environmental law in the new era of the Earth's history: the Anthropocene. The book discusses multiple contemporary and future challenges facing the planet and humanity. It examines the relationship between environmental law and the Anthropocene at governance scales from the global to the local. The breadth of issues and jurisdictions covered by the book, its forward-looking nature, and the unique generational perspective of the contributing authors means that this publication appeals to a wide audience from specialist academics and policy-makers to a broader lay readership. This book began life as a series of lectures given to second and third year undergraduates at Oxford University. These lectures were designed to give students insights as to how marine ecosystems functioned, how they were being affected by natural and human interventions, and how we might be able to conserve

them and manage them sustainably for the good of people, both recreationally and economically. This book presents 10 chapters, beginning with principles of oceanography important to ecology, through discussions of the magnitude of marine biodiversity and the factors influencing it, the functioning of marine ecosystems at within trophic levels such as primary production, competition and dispersal, to different trophic level interactions such as herbivory, predation and parasitism. The final three chapters look at the more applied aspects of marine ecology, discussion fisheries, human impacts, and management and conservation. Other textbooks covering similar topics tend to treat the topics from the point of view of separate ecosystems, with chapters on reefs, rocks and deep sea. This book however is topic driven as described above, and each chapter makes full use of examples from all appropriate marine ecosystems. The book is illustrated throughout with many full colour diagrams and high quality photographs. The book is aimed at undergraduate and graduate students at colleges and universities, and it is hoped that the many examples from all over the world will provide global relevance and interest. Both authors have long experience of research and teaching in marine ecology. Martin Speight's first degree was in marine zoology at UCNW Bangor, and he has taught marine ecology and conservation at Oxford for 25 years. His research students study tropical marine ecology from the Caribbean through East Africa to the Far East. Peter Henderson is a Senior Research Associate at the University of Oxford, and is Director of Pisces Conservation in the UK. He has worked on marine and freshwater fisheries, as well as ecological and economic impacts and exploitation of the sea in North and South America as well as Europe.

Addressing the climate change and poverty nexus

Bats in the Anthropocene: Conservation of Bats in a Changing World

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A Practical Approach
The Politics of the Anthropocene
Interdisciplinary Science in Support of Nature and People